We claim:

1. A method of generating a deploy document describing an optimized flow that corresponds to a user defined flow, said method comprising:

creating a connections mapping table wherein a connection in said optimized flow is associated with at least one connection in said user defined flow.

2. The method of claim 1 further comprising including information in said deploy document that allows said connections mapping table to be recreated by a receiver of said deploy document.

3. The method of claim 2 wherein said deploy document is formatted in the eXtensible Markup Language.

4. A compiler operable to create a connections mapping table wherein a connection in an optimized flow, which corresponds to a user defined flow, is associated with at least one connection in said user defined flow.

5. A computer readable medium containing computer-executable instructions which, when performed by a processor in a computer system, cause said computer system to create a connections mapping table wherein a connection in an optimized flow, which corresponds to a user defined flow, is associated with at least one connection in said user defined flow.

6. A method of executing an optimized flow that is derived from a user defined flow, each of said optimized flow and said user defined flow comprising a plurality of nodes connected by a plurality of connections, said method comprising:

constructing a stack associated with a terminal of a given node of said plurality of nodes in said optimized flow, said terminal connecting to a given optimized flow connection of said plurality of connections in said optimized flow, where said given

optimized flow connection is associated with at least one user flow connection of said plurality of connections in said user defined flow;

reporting imminent execution of said given optimized flow connection;

receiving an instruction to push an indication of a particular user flow connection, among said at least one user flow connection associated with said given optimized flow connection, into said stack; and

responsive to receiving said instruction to push, pushing said indication of said particular user flow connection into said stack.

7. The method of claim 6 further comprising:

receiving an instruction to delay said execution of said given optimized flow connection; and

responsive to receiving said instruction to delay, delaying said execution of said given optimized flow connection pending receipt of a corresponding resume instruction.

8. The method of claim 6 further comprising:

receiving an instruction to resume said execution of said given optimized flow connection; and

responsive to receiving said instruction to resume, resuming said execution of said given optimized flow connection.

9. The method of claim 6 further comprising constructing a new stack associated with said

terminal of said given node for each iteration of a loop.

10. A runtime for executing an optimized flow that is derived from a user defined flow, each of said optimized flow and said user defined flow comprising a plurality of nodes connected by a plurality of connections, said runtime operable to:

> construct a stack associated with a terminal of a given node of said plurality of nodes in said optimized flow, said terminal connecting to a given optimized flow connection of said plurality of connections in said optimized flow, where said given optimized flow connection is associated with at least one user flow connection of said plurality of connections in said user defined flow;

> report imminent execution of said given optimized flow connection;

> receive an instruction to push an indication of a particular user flow connection, among said at least one user flow connection associated with said given optimized flow connection, into said stack; and

> push said indication of said particular user flow connection into said stack.

11. A computer readable medium containing computer-executable instructions which, when performed by a processor in a computer system for executing an optimized flow that is derived from a user defined flow, each of said optimized flow and said user defined flow comprising a plurality of nodes connected by a plurality of connections, cause said computer system to:

> construct a stack associated with a terminal of a given node of said plurality of nodes in said optimized flow, said terminal connecting to a given optimized flow connection of said plurality of connections in said optimized flow, where said given optimized flow connection is associated with at least one user flow connection of

said plurality of connections in said user defined flow;

report imminent execution of said given optimized flow connection;

receive an instruction to push an indication of a particular user flow connection, among said at least one connection associated with said given connection, into said stack; and

push said indication of said particular user flow connection into said stack.

12. A method of controlling a runtime for debugging a user defined flow that has been compiled into an optimized flow, each of said optimized flow and said user defined flow comprising a plurality of nodes connected by a plurality of connections, said method comprising:

receiving a report, from said runtime, of imminent execution of a given optimized flow connection of said plurality of connections in said optimized flow;

querying said runtime to identify at least one user flow connection of said plurality of connections in said user defined flow associated with said given optimized flow connection;

determining whether a breakpoint has been placed on a first user flow connection of said at least one user flow connection in said user defined flow;

responsive to determining a breakpoint has been placed on said first user flow connection, determining whether an indication of said first user flow connection exists in a stack associated with a terminal of a given node of said plurality of nodes in said optimized flow, said terminal connecting to said given optimized flow connection; and

responsive to determining said indication does not exist in said stack, instructing said runtime to push an indication of said first user flow connection into said stack.

13. The method of claim 12 further comprising instructing said runtime to pause execution of said optimized flow.

14. The method of claim 13 further comprising:

determining whether said execution of said optimized flow is paused; and

only instructing said runtime to pause if said execution is not already paused.

15. The method of claim 14 further comprising:

receiving an instruction from a user to continue execution; and

determining whether further user flow connections in said user defined flow are associated with said given optimized flow connection.

16. The method of claim 15 further comprising:

responsive to determining that further user flow connections in said user defined flow are associated with said given optimized flow connection, determining whether a breakpoint has been placed on a subsequent user flow connection of said further user flow connections;

responsive to determining a breakpoint has been placed on said subsequent user flow connection, determining whether an indication of said subsequent user flow connection exists in said stack; and

responsive to determining said indication of said subsequent user flow connection does not exist in said stack, instructing said runtime to push an indication of said subsequent connection into said stack.

17. A debugger for debugging a user defined flow that has been compiled into an optimized flow, each of said optimized flow and said user defined flow comprising a plurality of nodes connected by a plurality of connections, said debugger operable to:

receive a report, from a runtime, of imminent execution of a given optimized flow connection of said plurality of connections in said optimized flow;

query said runtime to identify at least one user flow connection of said plurality of connections in said user defined flow associated with said given optimized flow connection;

determine whether a breakpoint has been placed on a first user flow connection of said at least one user flow connection in said user defined flow;

determine whether an indication of said first user flow connection exists in a stack associated with a terminal of a given node of said plurality of nodes in said optimized flow, said terminal connecting to said given optimized flow connection; and

instruct said runtime to push an indication of said first user flow connection into said stack.

18. A computer readable medium containing computer-executable instructions that, when performed by a processor in a computer system for debugging a user defined flow that has been compiled into an optimized flow, each of said optimized flow and said user defined

flow comprising a plurality of nodes connected by a plurality of connections, cause said computer system to:

receive a report, from a runtime, of imminent execution of a given optimized flow connection of said plurality of connections in said optimized flow;

query said runtime to identify at least one user flow connection of said plurality of connections in said user defined flow associated with said given optimized flow connection;

determine whether a breakpoint has been placed on a first user flow connection of said at least one connection in said user defined flow;

determine whether an indication of said first user flow connection exists in a stack associated with a terminal of a given node of said plurality of nodes in said optimized flow, said terminal connecting to said given optimized flow connection; and

instruct said runtime to push an indication of said first user flow connection into said stack.